

Arthur Oregon 3/28/1887

Dr Asa Gray

Dear friend

Your last Botanical contributions has just come to hand, pardon me for making the following criticisms.

Portulacaceae

Sewisia Pursh, should be confined to the original *S. pedivina* or else your *Calandrinia* section *Pachyrhiza* should be put with it, I have studied the order Portulacaceae very thoroughly, so far as I have been able to, and I find nothing to separate *Sewisia* from these "Calandrinias" except the jointed scape, several sepals, (this is broken down by "*S. brachycalyx*" and the accumbent cotyledons; but the jointed ~~scape~~ scape and ~~accumbent~~ accumbent seeds are enough, confine the genus to that and it will do, but this throws out *S. brachycalyx* which naturally falls into "Calandrinia".

Whatever may grow in Chile I am not able to say not having had an opportunity to study that Flora but so far as our species go your section *Pachyrhiza* of *Calandrinia* is well marked and should have generic rank, and I will

hazard the remark that a close study of the Chilean species will disclose the fact that all the species that have the capsule of our thick rooted "Calandrinias" will be to differ from Calandrinia proper fully as much as our large rooted Western ones do. Then why not put ~~all~~ all the "Calandrinia" with this capsule in a genus by themselves and leave the other as Calandrinia? I would arrange them as follow, (taking your sectional name, Pachyrhiza, for a generic one without seeing wether it would be proper to do so or not). L

* Root fusiform or napiform, or in one species globular, Wholly (inch or more) under ground stems few flowered

+ Stems scape like, 1-3 inches high not exceeding the radical leaves; 1-3 flowered.

P. ~~brachycalyx~~, Sewisia brachycalyx Engl.

P. acaulis ~~trich.~~, I have not seen either of these.

P. Nevadense, flowers white rather large

P. pygmaea, flowers smaller, red

++ Taller 2-10 inches high exceeding the radical leaves

P. tenella, Claytonia triphylla Watson

I must strongly protest against this being put with Claytonia; it has nothing in common

with the Claytonias except the globular root, the flowers have 3-10 (usually 7) petals and 3-10 (usually 5) stamens, the flowers are ephemeral opening in the morning and closing, never to open again, before night, the capsule is exactly the same as the others of this genus. I have examined some thousands of specimens of this plant in the field where it was very plenty. I discard the specific name *triplylla* as being misleading, the leaves are more often only a pair, and nearly as often two pair as three in a whorl. ^{may be}

P. oppositifolia. Radical leaves linear-oblancoolate attenuate to the scarious-margined subterranean base 1 1/2 - 3 inches long, the lower cauline opposite and similar to the radical ones upper cauline leaves reduced to scattered entire bracts not glandular-ciliate stems 3-10 inches high, simple or branched and bearing one or more (usually 3-flowered) umbells of large white flowers: sepals orbicular, 3-4 lines long, acutely dentate but not ciliate; petals about 10 white or pinkish, 6-8 lines long; stamens 8-12 or more; style deeply 3-cleft; capsule oblong 3 lines long, 5-10 seeded. Calandrinia oppositifolia Watson

Pro. Am. Acad. X+ 359. The above description was

drawn from living specimens in flower that I have in my garden

From your description of it I should say that Calandrinia Tweedzi belonged here and would be

P. Tweedzi,

I have two other species of this section but have not sufficient material to make their characters clear.

** Scapiform stems a span or two high from a multicapital caudex and long thick roots paniculately several-many-flowered, no true leaves but several scattered, glandular ciliate bracts, on the stems, flowers ~~not~~ ephemeral.

P. Tweedzi may belong here. I have not seen it

P. Cotyledon, Caudex crowned with a dense rosette tuft of fleshy broadly spatulate leaves, 1-4 inches long. Petals 6-10 or more deep rose-color with lighter margins: Stamens 5-8 flattened below and coherent in a ring around the pistal; Stigmas 2 or 3: ovary narrowly oblong 1 1/2 lines long; ovules 12-20. Calandrinia cotyledon Watson l.c.

P. Scana, flowering for but a short time.

P. Columbiana flowering for months. As

I understand it you misquoted me in saying that *Calandrinia Columbiana* was transient flowering; it should have been *C. Teena*.

The other exsiccated tropical species of *Calandrinia* form a very natural group and ~~and~~ I should say are true *Calandrinia* HBK.

As to *Claytonia* it might be as well to make as many genera of it as you have sections, for if you keep it together as you have outlined it I do not see how you will keep *Montia fontana* out of it for you include all the characters of *Montia* in some species of *Claytonia*. I think the following arrangement might be better

* *Euclaytonia*, ^{grass} perennial, from a corm, ~~thick~~
~~thick~~ caudex and tap root, ovules more than 3

C. Virginiana I,

C. Caroliniana Michx.

C. lanceolata Pursh.

C. Umbellata Watson. The radical leaves are just like the cauline except that they are on longer petioles

C. Mezarrhiza Parry

C. arctica Adams

~~I have never seen *C. serotina* but think~~

alternate very fleshy leaves

C. parvifolia Mac.

C. sarmentosa Bunge.

+++ Perennials with few or several pairs of opposite leaves,

C. Chamissonis Esch

C. Hallii Gray

++++ Annual, leaf-stemmed, leaves broad not fleshy mostly alternate

C. diffusa Nutt.

The others I should refer to ~~Montia~~ *Montia*, they all have a gamopetalous corolla with three small lobes and two larger ones and invariably never more than three stamens. These species are very common here and I have examined some thousands of each.

* Seeds more or less wing-margined

M. linearis, *C. linearis* Dougl.

M. dichrotoma *C. dichrotoma* Nutt. in part.

M. Howellii Watson, *C. dichrotoma* Nutt. in part.

I have no doubt but Mr. Nuttall got the two last species mixed, Mr. Wyeth's head quarters was within 5 miles of my residence and ~~the~~ *M. Howellii* is one of the first plants he would

find in the spring he undoubtedly got it; but it is usually apetalous, so he perhaps did not see the full flowers of it, but found another plant of similar appearance with petals and described both under one name, ~~this~~ this should not hinder separating them now, for there are no two species in this whole order that are more distinct. *M. Howellii* is depressed and rooting at the nodes, with narrowly spatulate, or oblanceolate leaves and axillary flowers, whilst *M. dictyotoma* is more erect seldom if ever rooting at the nodes, with linear leaves, and terminal racemes of flowers.

The other species is *M. fontana* L. of course.

** Leaves not winged

M. fontana L.

I send you a few things for determination you are wrong in referring Nos. 603, 604 and 605 of my last sending to *Sidalcea campestris* Greene, it is very different in habit from that species, it also invariably has larger and darker colored flowers and the petals are broader. I will make further notes on these the coming season.